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NOTICE OF ALLOWANCE AND FEE(S) DUE

24197 7590 01/12/2009

KLARQUIST SPARKMAN, LLP
121 SW SALMON STREET
SUITE 1600
PORTLAND, OR 97204

EXAMINER

BLUME, BENJAMIN P

ART UNIT

PAPER NUMBER

1648

DATE MAILED: 01/12/2009

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/590,696 | 07/01/2004 | Yoon-Won Kim | 7037-69151-01 | 3101 |

TITLE OF INVENTION: NOVEL ANTI-VIRAL VSF PROTEIN AND HYBRIDOMA PRODUCING THE SAME

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | YES | \$755 | \$300 | \$0 | \$1055 | 04/13/2009 |

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
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P.O. Box 1450
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

24197 7590 61/12/2009
KLARQUIST SPARKMAN, LLP
121 SW SALMON STREET
SUITE 1600
PORTLAND, OR 97204

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or by facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

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|----------------|--------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | YES | \$755 | \$300 | \$0 | \$1055 | 04/13/2009 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|--------------------|----------|----------------|
| BLUMEL, BENJAMIN P | 1648 | 424-159100 |

| | |
|---|---|
| 1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). | 2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. |
| <input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached. | 1. _____ |
| <input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required. | 2. _____ 3. _____ |

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

| | |
|---|--|
| 4a. The following fee(s) are submitted: | 4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above) |
| <input type="checkbox"/> Issue Fee | <input type="checkbox"/> A check is enclosed. |
| <input type="checkbox"/> Publication Fee (No small entity discount permitted) | <input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached. |
| <input type="checkbox"/> Advance Order - # of Copies _____ | <input type="checkbox"/> The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form). |

| | | |
|--|--|---|
| 5. Change in Entity Status (from status indicated above) | <input type="checkbox"/> a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. | <input type="checkbox"/> b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2). |
|--|--|---|

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Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS; SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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| 24197 | 7590 | 61/12/2009 | EXAMINER | |
| KLARQUIST SPARKMAN, LLP | | | | BLUMEL, BENJAMIN P |
| 121 SW SALMON STREET | | | | ART UNIT |
| SUITE 1600 | | | | 1648 |
| PORTLAND, OR 97204 | | | | DATE MAILED: 01/12/2009 |

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 203 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 203 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

| | | | |
|-------------------------------|------------------------|---------------------|--|
| Notice of Allowability | Application No. | Applicant(s) | |
| | 10/500,696 | KIM ET AL. | |
| | Examiner | Art Unit | |
| | BENJAMIN P. BLUMEL | 1648 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- This communication is responsive to applicant's response of December 9, 2008.
- The allowed claim(s) is/are 1-14.
- Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - All
 - Some*
 - None
 of the:
 - Certified copies of the priority documents have been received.
 - Certified copies of the priority documents have been received in Application No. _____.
 - Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 * Certified copies not received: _____.
- A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
- CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached 1) hereto or 2) to Paper No./Mail Date _____.
 - including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
 Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
- DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- Notice of References Cited (PTO-892)
- Notice of Draftsperson's Patent Drawing Review (PTO-948)
- Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
- Examiner's Comment Regarding Requirement for Deposit of Biological Material
- Notice of Informal Patent Application
- Interview Summary (PTO-413),
Paper No./Mail Date _____.
- Examiner's Amendment/Comment
- Examiner's Statement of Reasons for Allowance
- Other _____.

/BENJAMIN P BLUMEL//
Examiner, Art Unit 1648

DETAILED ACTION

Applicants are informed that the rejections of the previous Office action not stated below have been withdrawn from consideration in view of the Applicant's arguments and/or amendments.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 13, 2008 has been entered.

Claims 1-14 are examined on the merits.

Election/Restrictions

Claims 1-3, 8-10, 13 and 14 are directed to an allowable product. Pursuant to the procedures set forth in MPEP § 821.04(B), claims 4-7 and 9-12, directed to the process of making or using an allowable product, previously withdrawn from consideration as a result of a restriction requirement, are hereby rejoined and fully examined for patentability under 37 CFR 1.104.

Because all claims previously withdrawn from consideration under 37 CFR 1.142 have been rejoined, **the restriction requirement as set forth in the Office action mailed on October 16, 2006 is hereby withdrawn**. In view of the withdrawal of the restriction requirement as to the rejoined inventions, applicant(s) are advised that if any claim presented in a continuation or divisional application is anticipated by, or includes

Art Unit: 1648

all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once the restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Response to Amendment

The declaration under 37 CFR 1.132 filed December 9, 2008 is sufficient to overcome the rejection of claim 14 based upon insufficiency of disclosure under 35 U.S.C. 112, first paragraph. Since applicants have provided documentation showing the deposit of the 4D1B hybridoma under accession number KCLRF-BP-00052 and the ensuring that this cell line will be kept viable and available to the public upon granting of any patent to such an invention, the 35 U.S.C. 112 1st paragraph Enablement rejection has been overcome.

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: the prior art fails to teach a virus suppressing factor (VSF) with following characteristics:

- (a) it is increasingly produced in an immune cell stimulated by EMC-DV, encephalomyocarditis virus;
- (b) it has an antiviral activity which is unchanged by immunoprecipitation and immunoneutralization;
- (c) it is inactivated by proteinase K;
- (d) it is not one of the group of antiviral cytokines consisting of IL-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, IL-17,

Art Unit: 1648

IL-18, G-CSF, GM-CSF, TNF- α , TNF- β , IFN- α , IFN- β , IFN- γ , TGF- β , RANTES, MIP- α , MIP-1 β , MIP-1 γ , MCP-1, MCP-3, IP-10 and lymphotactin;

(e) it comprises about 55 kDa polypeptide (H) having the amino acid sequence of SEQ ID NO: 2, about 30 kDa polypeptides (L1 and L2) and about 25 kDa polypeptide (L3) having the amino acid sequence of SEQ ID NO: 4;

(f) it has a molecular weight of over about 100 kDa; and

(g) it is stable at 56°C for about 40 minutes.

The prior art also fails to teach the hybridoma that produces VSF, particularly the hybridoma 4D1B (accession number KCLRF-BP-00052).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Sheree Lynn Rybak on December 11, 2008.

The application has been amended as follows:

IN THE CLAIMS:

Art Unit: 1648

In claim 1, at lines 3 and 4, “a variant of encephalomyocarditis virus, EMC-DV” has been deleted and --EMC-DV, encephalomyocarditis virus-- inserted therefor.

In claim 4, at lines 2 and 3, “a variant of encephalomyocarditis virus, EMC-DV” has been deleted and --EMC-DV, encephalomyocarditis virus-- inserted therefor.

In claim 5, at lines 3 and 4, “a variant of encephalomyocarditis virus, EMC-DV” has been deleted and --EMC-DV, encephalomyocarditis virus-- inserted therefor.

In claim 6, at lines 3 and 4, “a variant of encephalomyocarditis virus, EMC-DV” has been deleted and --EMC-DV, encephalomyocarditis virus-- inserted therefor.

In claim 8, at line 3, “a variant of encephalomyocarditis virus, EMC-DV” has been deleted and --EMC-DV, encephalomyocarditis virus-- inserted therefor.

In claim 11, at line 1, “vial” has been deleted and --viral-- inserted therefor.

Please replace the original paragraph on pages 15, lines 1-10 of the specification with the following paragraph:

For example, fusion of immune cells with tumor cells may be achieved by the conventionally known method, which is exemplified by the Koehler & Milstein's method (Koehler et al., Nature 256, 495-497, 1975) that is generally used, and electrofusion using electric pulse. Lymphocytes and a myeloma cell line are mixed at a ratio commonly used in the art, subjected to cell fusion using a FCS-free culture medium containing polyethyleneglycol, which is generally used in the art, and cultured in FCS-containing HAT selection medium to select fused cells (hybridoma cells). In connection with this, the present invention provides a hybridoma producing a VSF protein. The hybridoma of the present invention was deposited with an international depository authority, KCLRF (Korean Cell Line Research Foundation, Cancer Research Institute, Seoul National University College of Medicine, 28 Yongon-dong, Chongno-gu, Seoul 110-744) on Dec.

Art Unit: 1648

21, 2001 under the provisions of the Budapest Treaty and has been assigned accession number KCLRF-BP-00052.

Summary

Claims 1-3, 10, 11, 13 and 14 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN P. BLUMEL whose telephone number is (571)272-4960. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce Campell can be reached on 571-272-1600. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BENJAMIN P BLUMEL/
Examiner
Art Unit 1648

/Bruce Campell/

